What do you notice about the strips of paper?

- Some are red, some are black.
- Red increase from left to right, while black decrease.
- For the first three numbers in each strip, the one's digit is the same.
- The last three numbers all have different one's digits.
- For the last three numbers, the ten's place is the same digit.
- There are either 5 even and one odd, or 5 odd and 1 even number.
- If you add all the numbers, you get an odd number.
- Every number is at most 2 digits.
- The largest number is 77.
There are no 8's or 9's possible as digits. (ten's) (right)

- If the one's digit on the left three numbers is all zero, then the one's digits on the right three numbers are 1, 2, and 4, from right to left.

- If the ten's digit on the right three repeats, then the one's digit on the left three repeats.

- If the one's digit is the same for the left 3, add 7 to this and you get the sum of the one's digits on the right three.

"Tell me the colors from left-to-right and lie about exactly one number's color. I will tell you the number you lied about."
Josephus Game:

Ten people are arranged in a circle, numbered 1-10. Every 7th person is tagged and has to leave the game, starting with person number 7. The last person standing wins the game. Where should you stand in the beginning to win the game?

Answers: 9, 6, 8

\[
\begin{array}{cccccccccc}
1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 & 10 \\
\cdot & \cdot & \cdot & \cdot & \cdot & \cdot & \cdot & \cdot & \cdot & \cdot \\
\end{array}
\]

\[
\begin{array}{cccc}
9 & 10 & 1 & 2 \\
6 & 7 & 8 & 3 \\
\end{array}
\]
What about if you have 512 people and every second person is eliminated starting with person 2.
Tennis

Match: The first to 3 sets.

Player A

Player B

Set 1: A B
Set 2: A B
Set 3:

A A A
A A B A
A A B B A

BBB